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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/829,494 | 04/21/2004 | Sheau Yang Ch'ng | 70031106-1 | 6927 |

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AGILENT TECHNOLOGIES, INC.
Legal Department, DL 429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

WYATT, KEVIN S

| ART UNIT | PAPER NUMBER |
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2878

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/829,494 | Applicant(s) CH'NG ET AL. | |
| | Examiner Kevin Wyatt | Art Unit 2878 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09/07/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7,9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,9 and 10 is/are rejected.
- 7) ☐ Claim(s) 2 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/07/2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the reflective medium disclosed in claims 4 and 9 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 5-7 and 10 rejected under 35 U.S.C. 102(b) as being anticipated by Ohtomo (U.S. Patent No. 6,093,828).

Regarding claims 1 and 6, Ohtomo shows Figs. 1 and 3b a method and apparatus comprising: a) a code strip carrier (100, i.e., rotor) having a plurality of code tracks (110 and 120, i.e. main scale and zero detecting indices), b) an illumination system (311 and 321, i.e., first light emitting device and second light emitting device) generating a light signal from each code track comprising a plurality of light and dark stripes (producing an occulting pattern), c) a plurality of read heads each comprising a photodetector (313 and 323, i.e. first photosensor and second photosensor) positioned to detect light from a corresponding one of said code tracks (110 or 120, i.e. main scale or zero detecting indices) as that code track moves relative to said read head, d) a controller (400) for generating an absolute position value related to the position of said code strip carrier relative to an origin position, e) a first absolute position track (120, i.e. zero detecting indices) that provides an indication of said absolute value when said code strip carrier is at each of a plurality of predetermined positions relative to said origin position (generating an absolute position value which represents the angle between the reference point (zero point) and the optional point), f) an incremental

position track for generating a digital value indicative of a displacement of said code strip carrier relative to the last predetermined absolute position (110, i.e., main scale that generates a number of light pulses fed into the input of main scale detection signal amplifier (601) whose output passes through stages 603 and 604 then feeds two counters (605 and 608) where the difference between 605 and 608 correspond to the angular distances between adjacent indices) (col. 4, lines 28-34 and 44-47, col. 6, lines 5-15)), wherein said readhead corresponding to said incremental position track (323, i.e., second photosensor) generates a first logic signal indicating the direction of travel (direction of decrease or increase by the number of counted pulses) of said code strip carrier relative to that readhead and a second logic signal (delivered to the A/D converter (602) to generate interpolation data to the cpu (609)) that changes state each time a boundary between a dark stripe and a light stripe passes under that readhead (col. 6, lines 40-50).

Regarding claims 5 and 10, Ohtomo shows in Fig. 3b a method and apparatus wherein one of said tracks comprises a state track (main scale 110) that provides a state value (output from main scale detecting unit (320) resulting from main scale light pulses) corresponding to each of a plurality of said absolute position values (counts from first counter (510) and second counter (520) triggered by zero the detection indices (120)) and wherein said controller (400) outputs said state value and said absolute value (count difference between first counter 510 and second counter 520 and angle between zero point and position of second index) (col. 5, lines 51-58, 58-60, 61-68, col. 6, lines 1-4 and 5-16).

Regarding claims 4 and 9, a) a code strip carrier (100, i.e., rotor) having a plurality of code tracks (110 and 120, i.e. main scale and zero detecting indices), b) an illumination system (311 and 321, i.e., first light emitting device and second light emitting device) generating a light signal from each code track comprising a plurality of light and dark stripes (producing an occulting pattern), c) a plurality of read heads each comprising a photodetector (313 and 323, i.e. first photosensor and second photosensor) positioned to detect light from a corresponding one of said code tracks (110 or 120, i.e. main scale or zero detecting indices) as that code track moves relative to said read head, d) a controller (400) for generating an absolute position value related to the position of said code strip carrier relative to an origin position; wherein e) one of said tracks comprises a first absolute position track (120, i.e. zero detecting indices) that provides an indication of said absolute value when said code strip carrier is at each of a plurality of predetermined positions relative to said origin position (generating an absolute position value which represents the angle between the reference point (zero point) and the optional point); a different one of said code tracks comprises f) an incremental position track for generating a digital value indicative of a displacement of said code strip carrier relative to the last predetermined absolute position (110, i.e., main scale that generates a number of light pulses fed into the input of main scale detection signal amplifier (601) whose output passes through stages 603 and 604 then feeds two counters (605 and 608) where the difference between 605 and 608 correspond to the angular distances between adjacent indices) (col. 4, lines 28-34 and

44-47, col. 6, lines 5-15)), wherein said predetermined strips are equally spaced on said code strip carrier.

Allowable Subject Matter

4. Claims 2 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Claims 2 and 7 are allowable because the prior art fails to disclose or make obvious, either singly or in combination, an absolute encoder comprising, in addition to the other recited features of the claim, predetermined strips are equally spaced on said code strip carrier.

Response to Arguments

5. Applicant's arguments filed 09/06/2005 have been fully considered but they are not persuasive.

In response to applicant's argument regarding claims 1 and 6, that claims are neither anticipated by Ohtomo. The Ohtomo system does not determine direction of travel from the sequence of absolute positions detected by the controller. The Ohtomo reference teaches that the direction of travel is determined by the difference of counted graduated lines recorded at the last two index points. The number of graduated counted

lines differs on either side of each index, direction is calculated based on the difference of counts recorded from one index point to another and the result indicates which direction the encoder travels. The counted pulses that are inputted to the direction finding unit determines the direction of travel. The controller simply detects the indices (absolute position) to record the index and prompt the subtracting that particular index from the previous detected one. Therefore the addition of claim 3 to claim 1 and claim 8 to claim 6 is not sufficient to overcome the anticipation of Ohtomo.

In response to applicant's argument regarding claims 5 and 10. The examiner does not maintain that 110 of Ohtomo comprises a state track that corresponds to each absolute position mark. The examiner maintains (according to the rejection of claims 5 and 10) that main scale (110) provides a state value resulting from light pulses read by main scale detecting unit (320) from main scale (110). The correspondence that main scale (110) has to the absolute position track (zero detecting index (120)) is that each time an absolute position is reached on the absolute position track (zero detecting indices), there is simultaneous output of the main scale detection signal and the index detection signal to the controller (400). However these values are always distinctly different. The state value (main scale value) represents the number of graduation lines counted from main scale (110) that even if translated into binary values would be distinct for each graduation line. The absolute position value represents the angular difference between adjacent indices which are also distinct (col. 5, lines 51-58, 58-60, 61-68, and col. 6, lines 1-4 and 5-16). Therefore Ohtomo anticipates each of the limitations of claims 5 and 10.

In response to applicant's argument regarding claims 4 and 9, that examiner has not pointed to any suggestion that would cause someone of ordinary skill in the art to use the disk of Bouldin for the encoding disk of Ohtomo. The device of Ohtomo comprises an A/D converter (602) and a cpu (609). These components provide the suggestion that the reflective optical data storage and laser recording medium of Bouldin could be useful in the device of Ohtomo. Furthermore, Ohtomo does not disclose a preference for the type of material to be used for its rotor.

Regarding the relevance of achieving high-resolution data storage in Ohtomo. Ohtomo shows in Figs. 9-10, that the mainscale graduation lines of Ohtomo are of very fine pitch. Ohtomo indicates this particularity in Fig. 10, in the section of the table that refers to the "number of pitches L from the reference (main signal) where after reaching 30 indices the main scale counts 3,900 graduation lines." Therefore good resolution would be very important in order to maintain accuracy of the compiled data during rotation of rotor (100). This proves that the reflective medium of Bouldin would address the problems of poor resolution and accuracy during rotation. For the reasons stated above, examiner submits that a *prima facie* case for obviousness has been made. Therefore the examiner maintains the rejections for claims 4 and 9.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Wyatt whose telephone number is (571)-272-5974. The examiner can normally be reached on Monday-Friday.

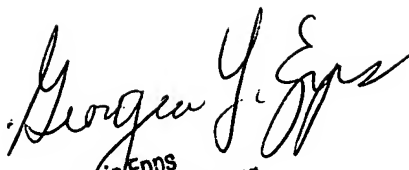
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2878



K.W.



Georgia Y. Epps
Supervisory Patent Examiner
Technology Center 2800